1. a) reject  b) accept  c) reject

2. a) accept  b) accept  c) reject

3. 

4. 

5. \( \{(P_1, P_2, P_3), \{a, b, c\}, \{(q_0, P_1, P_3), (q_1, P_2, P_3), (q_2, P_1, P_3)\}, P_1, \{P_3\}\} \)

6. \( \{q_0, q_1, q_2, q_3\}, \{a, b, c\}, \{(q_0, a, q_1), (q_0, b, q_2), (q_1, b, q_3), (q_1, c, q_2)\}, q_0, \{q_3\}\) 

7. The language of strings over \( \{a, b\} \) that end in \( bab \).

8. The language of strings over \( \{a, b, c\} \) that end in \( c \) followed by an even number of \( a \)'s or an even number of \( b \)'s.

9. a) \( M' = \{(q_0, q_1, \$,#), \{(q_1, q_2), (q_2, q_3), (q_3, q_1)\}\} \)

b) 

c) The algorithm produces a machine \( M' \) accepting the strings accepted by \( M \) that start with \( x \).

10. a) 

b) The algorithm produces a machine \( M' \) that accepts any string accepted by \( M \) followed by zero or more \( x \)'s.